DEC STD 068-0 Policy for Documentation of Revision Levels of Units and Combinations of Units

DOCUMENT IDENTIFIER: A-DS-EL00068-00-0000 Rev B1, 15-Mar-1990

ABSTRACT: This standard establishes the corporate policy governing documentation of revision levels of units and combinations of units. It defines responsibilities and definitions, and makes mandatory the use of the Revision Matrix document described in EL-EN068-01 Procedures for Using Revision Matrix Documents.

APPLICABILITY: Mandatory for all personnel who create products and maintain Revision Matrix documents for units and combinations of units.

STATUS: APPROVED 15-Mar-1990; use VTX SMC for current status.

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REVISION HISTORY:	Rev A,	06-Oct-1983	
	Rev B,	30-Jan-1987	ECO Number LJO01
	Rev B1,	15-Mar-1990	ECO Number CTS02
Document Management Category:	Part and Documentation Identification (TSP)		
Responsible Department:	Product Change Program Office		
Responsible Person:	Jarvis Bailey		

APPROVAL: This document has been approval for use by the DEC STD 068 Steering Committee. Rev B1 incorporates clerical changes only.

Jarvis D. Bailey - Product Change Process Office

Eric Williams - Standards Process Manager

Direct requests for further information to:

Jarvis D. Bailey
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1 INTRODUCTION

Revision Matrix documents allow Digital access to accurate and timely information concerning the revision compatibilities of products. This information is required by Sales, Field Service, Logistics, Engineering, Manufacturing, and CSSE. Accurate, current, and complete revision compatibility information is critical to Digital's success in serving our customers.

1.1 PURPOSE

This document defines the requirements for documentation of revision levels of units and combinations of units. Guidelines for establishing and documenting revision levels and revision level changes using the Revision Matrix document can be found in EL-EN068-01, *Procedures for Using Revision Matrix (RM) Documents*.

1.2 RESPONSIBILITIES

1.2.1 Project Team (Digital-Developed Products)

Project team responsibilities include implementing revision level documentation activities and implementing all content decisions such as parts, units, and kernels. The project team consists, at a minimum, of representatives from Design Engineering, Manufacturing, Support Engineering as required (for example, SASE), and Customer Services Systems Engineering (CSSE). For more project team information, refer to *DEC STD 028-0 Phase Review Policy.*

1.2.2 Design Engineering

Design Engineering is responsible for the documentation of revision levels. This includes:

- Creating and updating the Revision Matrix document for units and combinations of units under their responsibility.
- Defining the revision level of units and assemblies.
- Verifying compatibilities before and after changes.

1.2.3 Manufacturing

Manufacturing is responsible for implementing and maintaining processes and methods for production control of the documented revision levels and for revision-level marking to ensure visibility of required revision level information.

1.2.4 Support Engineering

Upon assumption of ECO responsibility, Support Engineering is responsible for the Revision Matrix document, for all update and maintenance, verification of compatibilities, and for the creation of Revision Matrix documents, for pre-DEC STD 068 products when required to do so by Field needs.

1.2.5 Customer Services Systems Engineering

Customer Services Systems Engineering is responsible for ensuring that the revision level information recorded in the Revision Matrix document supports Customer Services operations, and shares responsibility with the project team to ensure that the Revision Matrix documents are created and maintained. CSSE is responsible for distributing Revision Matrix documents to the Field. It is recommended that the speed bulletin process be used.

1.2.6 Project Team (Vendor Buy-out Products)

This project team is not the same as the team for Digital-developed products. The project team is responsible for implementation of revision level documentation activities for buy-out products. The project team, at the minimum, shall have members from CSSE and Field Service Logistics (FSL) product management. If a Continuation Engineering/Support Engineering function has been identified for the product, they shall also provide a team member.

2 DEFINITIONS

The following definitions pertain only to this document. Parts, units, and combinations of units may have other definitions outside the scope and meaning of this document. The project team shall ensure that all parts, including software and firmware, that are or may be revision sensitive are included in the Revision Matrix document, regardless of how these items match the definitions listed below.

2.1 SYSTEM

A "system" is defined as the minimum configuration of hardware, software, and firmware necessary to support an operating system.

2.2 KERNEL

A "Kernel" is defined as the top level part of a product at the minimum configuration required to run Standalone Diagnostics. It is the basic part from which "Customer" options and devices can be added to make a functional "System".

A "Kernel" does not have to boot an operating system, (such as VMS, UNIX, ULTRIX) nor does it have to be a "Customer" orderable part. An example is the KA86. It can be Point Of Manufactured (POM) from CSM to a customer. It doesn't have the capability, in itself, to run as a "System" until it has Input/Output (I/O) attached. It will however run diagnostic from RL02 Pack.

It is advisable to create the Revision Matrix document at the Kernel level. The project team shall define the highest level of control, such as the kernel.

2.3 UNIT

A unit consists of parts used together to perform a specific function. Often, a unit is an option. Examples include:

a. KA780-AA (VAX kernel CPU)

   Parts: backplane, H7100 power supply, M8218 through M8237 logic modules, and others.

b. FP780-AA (VAX floating-point accelerator)

   Parts: M8285 through M8289 logic modules, H7100 power supply, power supply cables, and others.

A unit can also be software, firmware, or diagnostics. Examples include QE001 (VAX/VMS operating system) and ZE014 (Micro diagnostic).

2.4 PART

A part is defined as a Field Replaceable Unit (FRU). Examples of parts include subassemblies, backplanes, modules, power supplies, heads, motors, cables, firmware, software, and documentation.

2.5 COMBINATION OF UNITS

A combination of units is a group of units that work together to perform a defined function using the "kernel" as the basic building block for the Revision Matrix document.

Examples:

a. VAX "System"

   Kernel: KA86-AA (VAX CPU)

   Unit: CI780-MA (CI Adapter)
   DW780-MB (VAX UNIBUS Adapter)
   FP86-AA (Floating Point Adapter)
   DEUNA-AA (UNIBUS to Ethernet Adapter)
   DMZ32-M (24L Async Interface)
   MS86-AA/CA (4/16 Meg Memory)
   UDA50-A (UNIBUS Disk Adapter)

b. Storage "System"

   Units: HSC50 (Storage Controller)
   TA81 (Tape Unit)
   RA81-AA (Disk unit)

c. Tape "System" (TA78)

   Units: TS78-AA (Tape Drive Formatter, SI Bus)
   TU78-AF (Tape Drive Slave)

3 POLICY

Revision level documentation for units and combinations of units requires that a project team exist and that an ongoing revision level compatibility verification process be defined. It is the intent of this standard to mandate that all combinations of units meet the requirements of this standard.

All products require that revision level information be formally documented. This documentation process requires that the following minimum actions take place:

1. The items to be included on the Revision Matrix document are selected by the project team. These items include hardware and/or software elements and any others necessary to define the functionality of the product.
2. The functional compatibility by revision level among the parts within a unit or among units in a combination is determined and verified.
3. A unit revision level identifier is established that relates the level of functionality of the unit to the revision levels of the selected parts that have been determined to be compatible. For a combination of units which do not have single part numbers or single pseudo part numbers (for example, 8600), the top level identifier relates to the minimum compatible revision levels of the units within the combination.

   Only the alphabetic character of DEC STD 012-0 is required to be used for the top level revision of units and combinations of units. However, the use of the full alphanumeric can be required by the project team.
4. The required information is documented in the Revision Matrix document.
5. Revision level information is marked on the product in a consistent and predictable manner per *DEC STD 178-3 Digital Marking Requirements for Completed Products Intended to be Sold*, *DEC STD 030-1 Module Manufacturing Standard - General Producibility Requirements*, or both.
6. The Revision Matrix document is systematically updated as part of the ECO process which shall be verified by CSSE prior to ECO approval.

4 REVISION MATRIX DOCUMENT

A Revision Matrix document is the established method to document part and unit compatibilities associated with revision levels and their changes. A Revision Matrix document shall be:

- Created by Engineering for each unit or defined combination of units for which compatibility information is required.
- Made part of its documentation package.
- Listed on the related top document such as the drawing directory or other document required by other Digital standards.

The project team representatives will determine the combinations that are to be placed under revision control in an Revision Matrix document. These are based upon Digital's current and planned products and architectures and are combinations for which compatibility is required and documented on an ongoing basis.

It is recognized that the list of units selected for inclusion in the combination of units may not be a complete list of all the units that are capable of being configured together. However, it is the intention of this standard to list those units that are supported as being configured together.

It is also recognized that an actual combination in the field may not necessarily include all of the units documented in a Revision Matrix as having the capability of being configured together.

NOTE

Peripheral options are tracked by their own Revision Matrix documents (for example, the RA81).

4.1 MINIMUM REQUIREMENTS FOR REVISION MATRIX DOCUMENTS

4.1.1 Phase 0 through Phase 3

A preliminary Revision Matrix shall be created no later than Phase 2 and maintained in this preliminary form through Phase 3. Change control shall be through the preliminary change authorization (PCA) process.

4.1.2 Phase 4 through Phase 5

The Revision Matrix document shall have the format as described in subhead 4.2 and be under ECO control before exiting Phase 3. The Revision Matrix shall be part of the unit's document set and is required to be listed on the DRB126 drawing directory, or other top document. A Revision Matrix document shall NOT be published or distributed unless it is officially released and under ECO control.

4.1.3 Minimum Frequency of Revision Matrix Document Updates

Upon release, at the exit from Phase 3, the Revision Matrix document must be updated and published at least as often as there are functional changes that increment the alphabetic revision of the product defined by the Revision Matrix document. The Revision Matrix team may update and publish the Revision Matrix document more frequently if desired. It is recommended that the Revision Matrix document be updated at least once a fiscal quarter during volume manufacturing.

4.2 REQUIRED FORMAT

The Revision Matrix document shall have the following format:

Section 1: Generic Information

a. Header Page, listing the members of the Revision Matrix team.

b. Table of contents by section and page.

c. Introduction/Preface to explain the Revision Matrix.

d. Define System Identification Register (SID), if applicable.

e. Example of "How to Use" that particular Revision Matrix.

Section 2: Machine Specific (Overview)

a. Revision History to show the evolution of the document in reverse chronological order. For example, the latest change should be listed first.

b. Revision Specific changes, for all changes to any component which affect the revision shown on the Revision Matrix document. For example, ECO/FCO (old-new), and a brief description of change.

c. Top Level breakdown of machine. To coincide with top level document depiction of machine.

d. Option Level breakdown within the machine. Not necessarily peripheral options such as RAs, HSCs, and operating systems.

e. Microcode breakdown by major components. Not necessarily to the individual diagnostic.

Section 3: Field Replaceable Units (Major)

a. Listing of major FRUs, for example, backplanes and machine options.

Section 4 and Up: Optional Sections (FRUs (Minor) or substructures)

a. To be used at the discretion of each Revision Matrix team for further information that is deemed necessary for their specific requirements to successfully maintain the machine.

Appendix (optional)

To be used at the discretion of each project team to provide information that is helpful but not necessary to meet the minimum requirements of the Revision Matrix document.

Index:

Listing of all "Part Numbers" in alphanumeric order.

All Revision Matrix document information and all parts listed on the document shall conform to *DEC STD 012-0 Part Identification Standard*. Informal numbers used to describe parts and configurations, such as "8600," are allowable as descriptions of equipment, but not as substitutes for the official part numbers.

APPENDIX A REFERENCED DOCUMENTS

A.1 EL-Class Digital Documents

EL-Class Number	Document Title
EL-00012-00	*DEC STD 012-0 Part Identification Standard*
EL-00025-00	*DEC STD 025-0 Parts Lists*
EL-00028-00	*DEC STD 028-0 Phase Review Policy*
EL-00030-01	*DEC STD 030-1 Module Manufacturing Standard - General Producibility Requirements*
EL-00178-03	*DEC STD 178-3 Digital Marking Requirements for Completed Products Intended to Be Sold*
EL-EN068-01	*Procedures for Using Revision Matrix (RM) Documents*

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